

CLAIMS

What is claimed is:

1. A method for operating a repeater in a wireless network including at least one access point, the method comprising:

detecting the presence of at least one access point based on information transmitted on one of at least two frequency channels using a wireless transmission protocol associated with the at least one access point;

identifying the detected at least one access point based upon the detected information; and

selecting the identified at least one access point and the at least two frequency channels for repeater operation;

wherein the repeater is capable of retransmitting information received from the selected at least one access point on one of the at least two frequency channels, wherein the repeater is capable of retransmitting information to the selected at least one access point on another of the at least two frequency channels, and wherein the repeater is capable of retransmitting a beginning portion of the information prior to receiving an end portion of the information.

2. A method according to claim 1, wherein the detecting is initiated automatically during a power-on sequence associated with the repeater.

3. A method according to claim 1, wherein the detecting is initiated by activating an input device associated with the repeater.

4. A method according to claim 3, wherein the input device includes a button.

5. A method according to claim 1, wherein the wireless network includes a time division duplex wireless local area network (WLAN) compliant with at least one of an IEEE 802.11 specification, and an IEEE 802.16 specification.

6. A method according to claim 1, wherein the detecting includes:
scanning the at least two frequency channels for a beacon signal thereon associated with the at least one of the at least two frequency channels; and
choosing the at least one access point as a preferred access point based on a quality of a metric associated with the beacon signal.

7. A method according to claim 6, wherein the metric includes one or more of: a power level associated with the beacon signal, a MAC address contained in the beacon signal, a BSS_ID contained in the beacon signal, and a signal to noise ratio associated with the beacon signal.

8. A method according to claim 1, further comprising scanning the at least two frequency channels at a periodic interval to determine if the selected at least one access point has changed to another of the at least two frequency channels.

9. A method according to claim 1, wherein the detecting includes:
scanning the at least two frequency channels; and

storing the information associated with each of the at least two frequency channels in a memory associated with the repeater.

10. A method according to claim 9, wherein the detecting further includes:
re-scanning the at least two frequency channels; and
using the stored information associated with each of the at least two frequency channels to re-select another of the at least one access point.

11. A method according to claim 10, wherein the re-scanning is performed upon power-up of the repeater.

12. A method according to claim 1, wherein the information associated with the at least two frequency channels is used to eliminate another of the at least two frequency channels as being available.

13. A method according to claim 1, wherein the information includes system level information transmitted from the at least one access point.

14. A method according to claim 13, wherein the system level information includes a MAC address associated with the at least one access point.

15. A method according to claim 13, wherein the system level information includes a BSS_ID associated with the at least one access point.

16. A method according to claim 13, further comprising transmitting the system level information on a maintenance link associated with the at least one access point.

17. A method according to claim 9, wherein the storing includes:
storing the information in a non-volatile memory;
moving the repeater to a new location and re-powering the repeater; and
using the stored information when the repeater is re-powered in the new location, to acquire the one of the at least two frequency channels by scanning the at least two frequency channels and comparing information obtained during the scanning with the information stored in the non-volatile memory.

18. A method according to claim 1, wherein the detecting includes:
scanning the at least two frequency channels to detect one of: a MAC address, and a BSS_ID associated with the at least one access point.

19. A method according to claim 1, further comprising notifying one or more clients on a repeated channel that the one of the at least two frequency channels associated with the at least one access point has changed.

20. A method according to claim 1, further comprising:
establishing a maintenance link between an integrated station device associated with the repeater and the at least one access point; and
receiving a remote management message including the information in the integrated station device over the established maintenance link.

21. A method according to claim 20, further comprising:

storing the information in a memory; and

generating a scan table in the memory based on the stored information.

22. A method according to claim 20, further comprising:

storing the information obtained using the maintenance link in the at least one access point, and

monitoring the information using one of: a SNMP, and a network management protocol.

23. A repeater for use in a wireless network having at least one access point, the repeater comprising:

a radio frequency section;

a memory storing instructions; and

a processor coupled to the radio frequency section and the memory, the instructions capable of being executed by the processor, the instructions for causing the processor to:

detect the presence of at least one access point based on information transmitted on one of at least two frequency channels using a wireless transmission protocol associated with the at least one access point;

identify the detected at least one access point based upon the detected information; and

select the identified at least one access point and the at least two frequency channels for repeater operation;

wherein the repeater is capable of retransmitting information received from the selected at least one access point on another of the at least two frequency channels and wherein the repeater is capable of retransmitting information to the selected at least one access point received on another of the at least two frequency channels, and wherein the repeater is capable of retransmitting a beginning portion of the information prior to receiving an end portion of the information.

24. A repeater according to claim 23, wherein the instructions, in causing the processor to detect, further cause the processor to initiate detecting automatically during a power-on sequence.

25. A repeater according to claim 23, further comprising an input device, and wherein the instructions, in causing the processor to detect, further cause the processor to initiate detection by determining that the input device has been activated.

26. A repeater according to claim 25, wherein the input device includes a button.

27. A repeater according to claim 23, wherein the wireless network includes a time division duplex wireless local area network (WLAN) compliant with at least one of an IEEE 802.11 specification, an IEEE 802.16 specification, and an IEEE 802.20 specification.

28. A repeater according to claim 23, wherein the instructions, in causing the processor to detect, further cause the processor to:

scan the at least two frequency channels for a broadcast signal including a beacon signal thereon associated with the at least one of the at least two frequency channels; and

choose the at least one access point as a preferred access point based on a quality of a metric associated with the broadcast signal including the beacon signal.

29. A repeater according to claim 28, wherein the metric includes a power level associated with the beacon signal.

30. A repeater according to claim 23, wherein the instructions further cause the processor to scan the at least two frequency channels to determine if the selected at least one access point has changed to another of the at least two frequency channels if a transmission from the preferred access point has not been received by a predetermined time.

31. A repeater according to claim 23, wherein the instructions, in causing the processor to detect, further cause the processor to:

scan the at least two frequency channels; and

store the information associated with each of the at least two frequency channels in the memory.

32. A repeater according to claim 31, wherein the instructions, in causing the processor to detect, further cause the processor to:

re-scan the at least two frequency channels; and

use the stored information associated with each of the at least two frequency channels to re-select another of the at least one access points.

33. A repeater according to claim 32, wherein the instructions, in causing the processor to re-scan, further cause the processor to re-scan upon power-up of the repeater.

34. A repeater according to claim 23, wherein the information associated with the at least two frequency channels is used to eliminate another of the at least two frequency channels as being available.

35. A repeater according to claim 23, wherein the information includes system level information transmitted from the at least one access point.

36. A repeater according to claim 35, wherein the system level information includes a MAC address associated with the at least one access point.

37. A repeater according to claim 35, wherein the system level information includes a BSS_ID associated with at least one access point.

38. A repeater according to claim 35, wherein the instructions further cause the processor to transmit the system level information on a maintenance link associated with the at least one access point.

39. A repeater according to claim 31, wherein the memory includes a non-volatile memory, and wherein the instructions in causing the processor to store, further cause the processor to:

store the information in the non-volatile memory; and

use the stored information when the repeater is re-powered in a new location, to acquire one of the at least one access point on the one of the at least two frequency channels using an address associated with the acquired one of the at least one access point.

40. A repeater according to claim 23, wherein the instructions in causing the processor to detect, further cause the processor to:

scan the at least two frequency channels to detect one of: a MAC address, and a BSS_ID associated with the at least one access point.

41. A repeater according to claim 23, wherein the instructions further cause the processor to notify one or more clients on a repeated one of the at least two frequency channels that the repeated one of the at least two frequency channels is going to change.

42. A repeater according to claim 23, further comprising an integrated station coupled to the radio frequency section, the memory, and the processor, and wherein the instruction further cause the processor to:

establish a maintenance link between the integrated station device and the at least one access points; and

receive a remote management message including the information, in the integrated station device over the established maintenance link.

43. A repeater according to claim 42, wherein the instructions further cause the processor to:

store the information in the memory; and

generate a scan table in the memory based on the stored information.

44. A method for operating a time division duplex repeater in a wireless network operating in accordance with a wireless protocol, the wireless network including at least a first frequency channel and a second repeated frequency channel, the wireless network including at least one access point and a station device, the method comprising:

receiving a packet at the time division duplex repeater; and

sending an acknowledgment message to the at least one access point in response to a successful reception of the packet in accordance with the wireless protocol,

wherein the packet is received on a repeated frequency channel at the station device, wherein the repeater does not generate the acknowledgement message when the packet is intended for the station device on the repeated channel, and wherein the repeater is capable of retransmitting information received from the selected at least one access point on another of the at least two frequency channels and wherein the repeater is capable of retransmitting information to the selected at least one access point received on another of the at least two frequency channels, and wherein the

repeater is capable of retransmitting a beginning portion of the information prior to receiving an end portion of the information.

45. A method according to claim 9, wherein the storing includes:
storing the information in a non-volatile memory;
moving the repeater to a new location and re-powering the repeater; and
using the stored information when the repeater is re-powered in the new location to acquire another of the at least two frequency channels and an address associated with the at least one access point.

46. A method according to claim 1, further comprising:
integrating at least a partial station device capability into the repeater for receiving beacon signals from the at least one access point; and
transmitting the beacon signals on another of the at least two frequency channels associated with the repeater.

47. A method according to claim 46, further comprising:
modifying the information received in the beacon signals to provide new frequency channel information to form a modified beacon signal; and
transmitting the modified beacon signal on the another of the at least two frequency channels.

48. A method according to claim 46, further comprising:

modifying the information received in the beacon signals by deleting at least a portion of a DS_parameters message compliant with an 802.11 standard protocol associated with the beacon signal to form a modified beacon signal; and
transmitting the modified beacon signal on the another of the at least two frequency channels.

49. A repeater according to claim 23, further comprising an integrated station device coupled to the radio frequency section, the memory, and the processor, and wherein the instructions further cause the processor to:

receive a beacon signal from the at least one access point; and
modify at least a portion of the beacon signal associated with an assigned frequency channel to indicate a modified assigned frequency channel, the modified assigned frequency channel including the one of the at least two frequency channels to form a modified beacon signal; and
transmit the modified beacon signal on the another of the at least two frequency channels.